

AVIATION BASE BUILDING  
KIRKUK, IRAQ

**SIGIR PA-06-040**  
**APRIL 12, 2006**

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE <b>12 APR 2006</b>		2. REPORT TYPE		3. DATES COVERED <b>00-00-2006 to 00-00-2006</b>	
4. TITLE AND SUBTITLE <b>Aviation Base Building Kirkuk, Iraq</b>				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>Office of the Special Inspector General for Iraq Reconstruction,400 Army-Navy Drive,Arlington,VA,22202-4704</b>				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release; distribution unlimited</b>					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT <b>Same as Report (SAR)</b>	18. NUMBER OF PAGES <b>35</b>	19a. NAME OF RESPONSIBLE PERSON
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>			



## **SPECIAL INSPECTOR GENERAL FOR IRAQ RECONSTRUCTION**

April 12, 2006

MEMORANDUM FOR COMMANDING GENERAL, MULTI-NATIONAL FORCES -  
IRAQ  
COMMANDING GENERAL, GULF REGION DIVISION,  
U.S. ARMY CORPS OF ENGINEERS  
DIRECTOR, IRAQ RECONSTRUCTION MANAGEMENT  
OFFICE

SUBJECT: Report on Project Assessment of the Aviation Base Building, Kirkuk, Iraq  
(Report Number SIGIR-PA-06-040)

We are providing this project assessment report for your information and use. We assessed the in-process construction work being performed at the Aviation Base Building, Kirkuk, Iraq to determine its status and whether intended objectives will be achieved. This assessment was made to provide you and other interested parties with real-time information on a relief and reconstruction project underway and in order to enable appropriate action to be taken, if warranted. The assessment team included an engineer and an auditor.

The comments received from the Multi-National Security Transition Command – Iraq in response to a draft of this report addressed the issues raised and the actions taken and planned should correct the issues we identified. As a result, comments on this final report are not required.

We appreciate the courtesies extended to our staff. This letter does not require a formal response. If you have any questions please contact Mr. Brian Flynn at (703) 343-9149 or [brian.flynn@iraq.centcom.mil](mailto:brian.flynn@iraq.centcom.mil) or Mr. Kevin O'Connor at (703) 343-9149 or [kevin.oconnor@iraq.centcom.mil](mailto:kevin.oconnor@iraq.centcom.mil).

Stuart W. Bowen, Jr.  
Inspector General

# **Special Inspector General for Iraq Reconstruction**

**SIGIR PA-06-040**

**April 12, 2006**

## **Aviation Base Building, Kirkuk, Iraq**

### **Synopsis**

**Introduction.** This project assessment was initiated as part of our continuing assessments of selected sector reconstruction activities. This project was an Air Force Center for Environmental Excellence contract to support the Multi-National Security and Transition Command - Iraq. The overall objectives were to determine whether selected reconstruction contractors were complying with the terms of their contracts or task orders and to evaluate the effectiveness of the monitoring and controls exercised by administrative quality assurance and contract officers. We conducted this project assessment in accordance with the Quality Standards for Inspections issued by the President's Council on Integrity and Efficiency. The assessment team included an engineer and an auditor.

**Project Assessment Objectives.** The objective of this project assessment was to provide real-time relief and reconstruction project information to interested parties in order to enable appropriate action, when warranted. Specifically, we determined whether:

1. Project results were consistent with original objectives;
2. Project components were adequately designed prior to construction or installation;
3. Construction or rehabilitation met the standards of the design;
4. The Contractor's Quality Control plan and the U.S. Government's Quality Assurance program were adequate; and
5. Project sustainability was addressed.

**Conclusions.** This assessment determined that:

1. The completed project was consistent with original task order objectives. Specifically, the aviation building and barracks/operations center facilities objectives have been met. At the time of the assessment, the facilities were in use for the objectives intended.
2. This project consisted of new construction. The contract and task order required submission and approval of design drawings and specifications for the new construction. Based on the review of contractor and Air Force Center for Environmental Excellence project files, the design was sufficient to complete these projects to Iraqi standards.
3. The contract for the construction of the aviation hangar and barracks/operations center building required meeting International and U.S. standards. However, the contractor proposed and the Air Force Center for Environmental Excellence agreed to construction using local contractors, materials, and labor. Consequently, the construction met local Iraqi standards, not International and U.S. standards.

Deficiencies and areas of poor quality construction were documented prior to and during the site assessment. The contract did contain requirements for final inspections and warranties and this may resolve the construction deficiencies identified. The U.S.

Air Force personnel provided the contractor with a list of deficiencies to correct. We observed the contractor making corrective actions to some of the deficiencies noted during our site assessment.

4. The basic contract's Scope of Work required the contractor to prepare, for the Air Force Center for Environmental Excellence review and approval, a site-specific Quality Program Plan. The contractor submitted a Construction Quality Control Plan to the U.S. Government. The contractor did provide Quality Control daily reports, test results, and invoices, which provided adequate detail to the U.S. Government. The U.S. Government's Quality Assurance program was not adequate. It appears that there was limited, if any, oversight by either the U.S. Army Corps of Engineers or the Air Force Center for Environmental Excellence for the aviation hangar and barracks/operations center building. According to the U.S. Air Force personnel attached to the end users of this project, the 3<sup>rd</sup> Squadron of the Iraqi Air Force, the Quality Assurance was at best "questionable" and at worst non-existent. Because of inadequate Quality Assurance practices, significant deficiencies, most notably the electrical fire within the aviation hangar, were not identified and corrected prior to sign off and turnover to the Iraqi Air Force.
5. The contract adequately addressed sustainability and it appears this will result in an operational and sustainable aviation hangar and barracks/operations center building. The contract included the turnover of the operation and maintenance manuals, as-built drawings, local procurement of parts and equipment, technical training of personnel, a one-year warranty for all equipment and operations, and providing spare repair parts for one year. The contractor worked with the Iraqi Ministry of Housing and Construction for design and support. A review of the aviation hangar and barracks/operations center building appeared to show that it was operating in accordance with the Scope of Work's specific objective for a functional facility.

**Recommendation.** The Commander, Multi-National Security Transition Command – Iraq should:

1. Ensure that all deficiencies identified in this report and those identified by the U.S. Air Force are addressed by the contractor under the contract's warranty.
2. Ensure that adequate Quality Assurance oversight is performed on future projects.

**Management Comments.** The Chief of Staff, Multi-National Security Transition Command – Iraq, concurred with our conclusions and recommendations and provided the following comments.

1. "The contractor has notified AFCEE (Air Force Center for Environmental Excellence) that the warranty items have been completed and will be field verified by an AFCEE representative during the final inspection scheduled for 12 April 06. If at the time of inspection it is determined that all items are not satisfactorily completed then those remaining items will be re-inspected within 10 days. In addition, the Coalition Air Force Transition Team personnel will also be extended the opportunity to review the warranty items at the time of inspection."
2. "The findings outlined in the subject report are of great concern for both MNSTC-I (Multi-National Security Transition Command – Iraq) and AFCEE. Unfortunately, during this project the quality assurance responsibility was switched from USACE to a contracted Title II company. This transition appears to have been a contributing factor to the noted deficiencies. To ensure this doesn't happen in the future AFCEE now notifies their Title II contractor

simultaneously with the award of the construction contract. This change in approach has ensured continuity throughout the duration of the project.

We realize the success of our projects is contingent upon the coordination between our team composed of MNSTC-I, AFCEE, and Title II contractor. Given the number deficiencies highlighted in the report we feel it important that we discuss these issues amongst our team. For this reason we'll schedule a SIGIR Report Debriefing meeting with representation from each of the team members on 17 April to discuss the items highlighted in the report. The goal of the meeting will be to state the findings, determine the root causes, and then take the necessary actions to help minimize reoccurrence of these findings. Upon completion of the meeting we can provide minutes showing all issues discussed."

**Evaluation of Management Comments.** Management comments from the Multi-National Security Transition Command – Iraq addressed the issues raised in our conclusions and actions planned and taken should correct the problems.

The U.S. Army Corps of Engineers also provided management comments to clarify its position concerning the Government's Quality Assurance Program. The U.S. Army Corps of Engineers' position was that the aviation building was not their responsibility because they had oversight only of Task Order 0003 through Modification 03.

For the entire management comments from the Multi-National Security Transition Command – Iraq and the U.S. Army Corps of Engineers, and our evaluation of the comments, please see the Management Comments and Evaluation of Management Comments in the body of this assessment report.

# Table of Contents

---

<b>Synopsis</b>	i
<b>Introduction</b>	1
Objective of the Project Assessment	1
Pre-Site Assessment Background	1
Contract, Task Order and Costs	1
Project Objective	2
Description of Facility (preconstruction)	2
Scope of Work of the Contract	3
Current Project Design and Specifications	3
Reported Project Work Completed	5
<b>Site Assessment</b>	5
Work Completed	5
Work in Progress	19
Work Pending	19
<b>Project Quality Management</b>	20
Contractor's Quality Control Program	20
Government's Quality Assurance Program	20
<b>Project Sustainability</b>	21
<b>Conclusions</b>	21
<b>Recommendation</b>	23
<b>Management Comments</b>	23
<b>Evaluation of Management Comments</b>	24
<b>Appendixes</b>	
A. Scope and Methodology	25
B. Acronyms	26
C. Report Distribution	27
D. Assessment Team Members	29

# Introduction

---

## Objective of the Project Assessment

The objective of this project assessment was to provide real-time relief and reconstruction project information to interested parties in order to enable appropriate action, when warranted. Specifically, we determined whether:

1. Project results were consistent with original objectives;
2. Project components were adequately designed prior to construction or installation;
3. Construction or rehabilitation met the standards of the design;
4. The Contractor's Quality Control (CQC) plan and the U.S. Government's Quality Assurance (QA) program were adequate; and
5. Sustainability was addressed.

## Pre-Site Assessment Background

### Contract, Task Order, and Costs

The Military Base - Aviation Base Building project was definitized to construct a hangar, an operations building, and a refueling facility. This was one small project performed under the Air Force Center for Environmental Excellence (AFCEE) Worldwide Environmental Restoration and Construction (WEREC) contract number, FA8903-04-D-8672. This contract, issued 21 November 2003, was a small business indefinite quantity contract. The Air Force Materiel Command issued the contract to the Environmental Chemical Corporation (ECC).

Task Order (TO) 0003, issued 15 April 2004, was a cost plus fixed fee agreement with a total Not to Exceed (NTE) amount of \$47,500,528. The TO 0003 objective was to construct all the requirements for a military base near Kirkuk, Iraq. The Military Base - Aviation Base Building project was part of this TO, although the location moved later to the Kirkuk Regional Air Base (KRAB). The TO 0003 had seven TO modifications.

- Modification # 01, issued 28 July 2004, revised the Statement of Work (SOW) and extended the construction completion date to 12 September 2004. All other terms and conditions remain in full force and effect.
- Modification # 02, issued 8 October 2004, increased the ceiling amount by \$13,199,923, to \$60,700,451, extended the field performance period to 15 January 2005 and the period of performance to 15 March 2005, re-designated the project manager, and added email-invoicing instructions. All other terms and conditions remain in full force and effect.
- Modification #03, issued 19 November 2004, increased the ceiling amount by \$2,796,617, to \$63,497,068, replaced the existing SOW with the revised SOW, dated 21 September 2004, and added contractor acquired property. All other terms and conditions remain in full force and effect.
- Modification #04, issued 28 February 2005, increased the contract ceiling by \$7,808,333, to \$71,305,401, replaced the existing SOW with the revised SOW, dated 4 January 2005, extended field and contract performance period to 15 May 2005, added contractor acquired property, and modified the invoice instructions. All other terms and conditions remain in full force and effect.



- Modification #05 issued 16 March 2005, extended the TO period of performance for field construction to 15 July 2005, extended the period of performance for TO completion to 31 August 2005, and changed the contractor acquired property. All other terms and conditions remain in full force and effect.
- Modification #06, issued 31 August 2005, changed contractor acquired property and provided new invoice instructions. All other terms and conditions remain in full force and effect.
- Modification #07, issued 15 November 2005, extended the period of performance for field construction to 30 December 2005. All other terms and conditions remain in full force and effect.

Phase I of the New Brigade Military Base, which included the Aviation Base Building, began with TO 0003 and was completed in Phase II under TO 0016 of the same contract. The Aviation Base building project was first added under modification 1 of TO 0003 and changes were implemented in amended scopes of work.

Modification 04 of TO 0016 moved the aviation work to the KRAB at the request of the AFCEE. Although TO 0016 completed the construction of a complete military base, this assessment only included the construction of the Aviation Base Buildings at KRAB. The Project and Contracting Office (PCO) database identified this project as 20645 with a value of \$13,199,923; however, an AFCEE official stated the final cost was \$2,250,000.

### **Project Objective**

According to the contract, the intent of the project was to provide restoration, improvements, and construction of the Kirkuk Military Base. This base would support, house, and train a new Iraqi Brigade. The modified SOW added the maintenance hangar project, a 10,000-liter aviation gas tank and a 20,000-liter JP8 fuel tank, and associated operations facility. The end user of these projects is the Multi-National Security Transition Command – Iraq. The specific objective of the aviation base building project was to construct a hangar, fuel tanks, and an operations building at the KRAB to support and train Iraqi Air Force personnel.

### **Description of the Facility (preconstruction)**

The description of the facility (preconstruction) was based on information obtained from the contractor, AFCEE personnel, and the AFCEE project file. The Kirkuk Military Base is located within the Tameem Governorate area, approximately 240 kilometers north of Baghdad, Iraq. The project site was located at the KRAB, adjacent to the runway. The initial site location was level with a concrete pad, having electricity and a non-potable water supply nearby (Site Photo 1). Community sewer services were not available at this location prior to construction.



**Site Photo 1. Preconstruction location of future hangar site (beyond trailers)**  
(Photo courtesy of ECC)

### **Scope of Work of the Contract**

Modification 04 of TO 0003 contained the revised SOW, entitled “Statement of Work for MOD 4 New Brigade”, dated 4 January 2005, and separates the tasks into civil site work, facility work, and special construction to build the Iraqi Army Base and the aviation facility near Kirkuk, Iraq. Contract modifications added and then moved the construction location of the Aviation Base Building through amended scopes of work.

Major tasks for the Aviation Base Building project included:

- Construction of the hangar
- Construction of the operations center
- Acquisition and installation of the fuel tanks

### **Current Project Design and Specifications**

The TO 0003 revised SOW, dated 4 January 2005, required a work plan, which included a property survey, a plan of all site civil work and utilities, and an architectural, structural, mechanical, plumbing, electrical, life safety, and communications plan. In addition, it required the submittal and approval of the following:

- Plan and construction submittals
- Equipment, fixture, finishing, and hardware submittals
- Schedules and progress meetings
- Quality control plan
- Commissioning plan
- Safety plan
- Security plan

Further, the SOW required the contractor provide for review two stages of the work plan, the “Concept” and the “Final” submittal reflecting the completed work plan. The SOW required the Concept submittals to reflect 30-40% of the final work plan effort of all systems, including drawings, and work plan analysis.

The SOW required drawings showing the approximate location of all plumbing equipment, piping floor plans and control accessories, plumbing riser plans, and equipment schedules. Specifically, congested areas such as toilet rooms and the kitchen required enlarged plans.

The SOW required that final submittals consist of the concept submittal requirements (work plan drawings and work plan analysis) updated to reflect final work plan development and the incorporation of review comments.

Finally, the SOW required, upon completion of the contract work, five sets of reproducible “as-built” condition drawings, including the site work completed.

The basic contract’s SOW required the contractor to identify and comply with, including all changes and amendments in effect on the date of issuance of each TO, the following:

- All applicable federal, state, and local statutes
- Air Force/Military/Host Nation instructions, manuals, handbooks, regulations, guidance, and policy letters
- Executive Orders (EOs)
- American Petroleum Institute Codes
- National Association of Corrosions Engineers
- National Fire Protection
- Steel Structures and Painting Counsel
- National Electrical Code
- Uniform Fire Code
- International Building Code (IBC)

The TO 0003 revised SOW, dated 4 January 2005, required the contractor to identify and comply with, including all changes and amendments in effect on the date of issuance of this TO, the following:

- All applicable Iraqi federal, state, and local statutes
- CPA and Air Force/Army/Iraqi instructions, manuals, handbooks, regulations, guidance, and policy letters
- EOs
- The IBC

A combination of paper copies and digital copies accessed through the ECC website portal were available for review. The assessment team reviewed the design submittals required to construct the project. Contractor design drawings included architectural, structural, electrical, and plumbing designs. In addition, the ECC submitted the manufacturer’s data sheet, work plans, and design calculations. The ECC prepared design submittals for the aircraft hangar and barracks and documented the transmittal to AFCEE utilizing Eng Form 4025-R “Letter of transmittal of shop drawings, equipment data material samples, or manufacture’s certificate of compliance.” The AFCEE reviewed and approved the submittals “as is” or with comment and documented approval on the submittal Eng Form 4025-R.

Based on a review of the design approval process and design submittals, the design appears to be complete and adequate to complete the objectives of this project.

### **Reported Project Work Completed**

We determined the project's status prior to the site visit through discussions with AFCEE and ECC personnel, as well as, a review of the contract. The PCO database listed the overall project as 70% complete on 10 December 2005 with an anticipated completion date of 31 December 2005. The contractor turned over the Aviation Hangar and Barracks/Operations Center building to the Iraqi Air Force on 7 December 2005.

#### **Project site work reported completed:**

- Design and construct a hanger
- Design and construct barracks/operations center
- Installation of fuel tanks

#### **Project site work reported in progress:**

- The contractor completed the project; however, there are several "punch list" items being addressed

#### **Project site work pending:**

- Once the contractor completes the "punch list" items, the project will be finished except for any warranty work that might be discovered

## **Site Assessment**

On 11 February 2006, we performed an on-site assessment of the Aviation Base Building project on the KRAB. Prior to the time on site, the assessment team reviewed selected project documentation provided by AFCEE and ECC. The assessment team discussed the project status and management processes with AFCEE and ECC personnel. At the time of the assessment, the project was 100% complete and turned over to the Iraqi Air Force, 3<sup>rd</sup> Squadron, which was currently using it for its intended purpose. Therefore, work completed was the focus of our assessment.

### **Work Completed**

#### **Construction of the hangar**

Modification 04's SOW required the construction of one 45x30.5 meter (m) hangar, equipped to house aircraft similar in size to a Cessna 172, at the KRAB. The design required a steel framed structure with I-beam columns and steel truss roofing supports. Flooring was an on-grade concrete slab with concrete footings for the columns.

The contractor officially turned over the hangar to the Iraqi Air Force on 7 December 2005. At the time of the assessment, construction of the hangar was complete (Site Photo 2). The hangar was in use jointly by the 3<sup>rd</sup> Squadron of the Iraqi Air Force and the U.S. Air Force (USAF). The Coalition Air Force Transition Team (Site Photo 3) consisted of USAF personnel instructing the Iraqi Air Force on aviation maintenance techniques.



**Site Photo 2. Exterior view of the hangar**



**Site Photo 3. Office symbol within the hangar**

During the site assessment, we verified that several small aircraft were housed within the hangar (Site Photos 4 and 5, respectively).

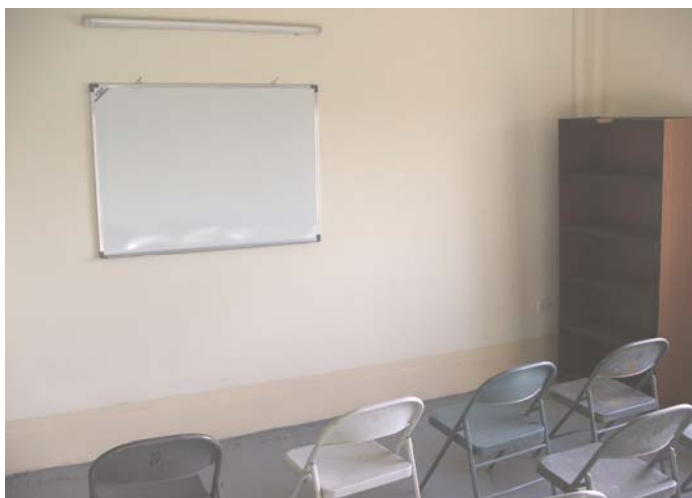


**Site Photo 4. Example of aircraft housed within the hangar**



**Site Photo 5. Example of Iraqi aircraft housed in the hangar**

Within the hangar, there were several rooms used for classroom instruction (Site Photo 6), personnel offices, and miscellaneous space, and one bathroom (Site Photos 7 and 8).



**Site Photo 6. Classroom within the hangar**





**Site Photo 7. Eastern toilet in bathroom**



**Site Photo 8. Sinks in the bathroom**

We noted several discrepancies during the site assessment, including improper window installation and electrical wiring.

Two days prior to our site visit, the Kirkuk area experienced significant rainfall. During the site visit, we identified water damage within the hangar's offices (Site Photo 9) and bathroom. The cause of the water damage was twofold – the windows were not properly sealed and the outside window ledge was flat, resulting in insufficient drainage. Consequently, the water leaked around or through the window frame into the hangar office rooms and down the wall (Site Photo 9) and onto the floor (Site Photos 10 and 11). The contractor's project manager was on site during the assessment and stated the problem was being addressed. The contractor was in the process of drilling drain lines on the outside of the windows (Site Photo 12).



**Site Photo 9. SIGIR Engineer pointing out water leakage**



**Site Photo 10. Water on floor because of window leakage**



**Site Photo 11. Leaking water on classroom floor**



**Site Photo 12. Contractor's fix for window drainage (drain lines)**



During the site assessment, USAF personnel pointed out an area of the aviation hangar which was scorched because of a fire due to an electrical short circuit. Site Photo 13 shows the burn from the fire and the partial repair to the wiring problem. Additional repairs will be required to ensure another short circuit will not occur in the future. Further, in mid-December 2005, upon moving into the aviation hangar, the USAF representative stated that he had to point out to the contractor that the wiring in one of the offices was not installed correctly and ultimately had to be re-done.



Site Photo 13. Small fire damage and repair to the wiring

#### Construction of the barracks/operations center

The contract required the construction of one barracks/operations center building to provide living quarters, office space, and instructional facilities for the 3<sup>rd</sup> Squadron of the Iraqi Air Force.

The contract called for the barracks/operation center building to have electric lighting, heating and air conditioning, fixed connections for all electrical equipment, a potable water supply, sanitary sewer connections and necessary plumbing for restrooms with toilets and washbasins, a recreation room, a quiet room, and administrative offices.

At the time of the assessment, the barracks/operations center building was in use by the 3<sup>rd</sup> Squadron of the Iraqi Air Force. The ground floor consisted mainly of office and administrative rooms while the first floor consisted of living quarters.

#### *Office and Administrative Space*

The ground floor provided the Iraqi Air Force with office and administrative space. For instance, the Iraqi Air Force used several rooms for computers (Site Photo 14), training, and resting/relaxing (Site Photo 15). Each room had lighting, a split A/C unit (Site Photo 16), and windows (Site Photo 17).



**Site Photo 14. Computer room**



**Site Photo 15. View inside resting room**



**Site Photo 16. Split A/C unit in rooms**



**Site Photo 17. Window within the resting room**

### *Living Quarters*

The first floor provided the Iraqi Air Force with living quarters. Currently, each room housed four Iraqi Air Force personnel with each person provided a bed, a metal locker, and lighting above the bed (Site Photo 18),. In addition, each room consisted of two windows a split air conditioning (A/C) unit, two ceiling fans (Site Photo 19), and fixed connections for all electrical equipment (Site Photo 20). We identified water leaking from windows in the living quarters (Site Photo 21) and office spaces, similar to the problems found in the aviation hangar.



**Site Photo 18. Example of bed, dresser, and lighting**



**Site Photo 19. Ceiling fans within each living quarters**



**Site Photo 20. Circuit breaker**



**Site Photo 21. Close-up view of water leaking through window**

### *Restrooms and Plumbing*

The contract required restrooms for the barracks/operations center building. During the site assessment, we identified restrooms on the ground and first floors. The ground floor restroom consisted of eastern and western toilets (Site Photo 22), washbasins (Site Photo 23), and mirrors and lights.



**Site Photo 22. Restroom with eastern (left) and western toilets**



**Site Photo 23. Restroom washbasins**

The first floor restroom consisted of eastern and western toilets, washbasins, mirrors and lights, and showers (Site Photos 24 and 25). In addition, the first floor had a laundry facility consisting of one washer and one dryer (Site Photo 26).





**Site Photo 24. Inside of shower**



**Site Photo 25. Outside of shower doors – door on left states “For Women”**



**Site Photo 26. Washer/dryer unit**

We identified plumbing issues on the ground and first floors. For example, water leaked from the first floor restroom through to the ground floor ceiling, damaging the ceiling tiles (Site Photos 27 and 28).

In addition, in the first floor restroom, the contractor removed floor tile in an effort to determine the cause of the leak (Site Photo 29).



**Site Photo 27. Evidence of water leakage**



**Site Photo 28. Example of water leakage**



**Site Photo 29. Floor tiles removed to determine cause of leak**

During the site assessment, we also identified minor construction issues that the contractor needs to correct under the contract's warranty. For instance, there were cracks in the outside wall stucco (Site Photo 30).



**Site Photo 30. Cracks in the outside wall stucco**



### *Potable Water Supply*

The contract required the supply of potable water. Outside the barracks/operations center building was a potable water supply (Site Photo 31).



**Site Photo 31. Potable water supply**

### Acquisition and installation of the fuel tanks

The contract SOW required fuel service for the aviation hangar consisting of one 10,000-liter aviation gas tank and one 20,000-liter JP8 tank. During the site assessment, we identified two fuel tanks which appeared to be in new condition (Site Photos 32 and 33). The fuel tanks were made by Flameshield and had the following serial numbers: 008450 and 008489, respectively. Both fuel tanks were marked “Tested to NFPA 30A-2000 Fire-Resistant Tank Requirements.” The contractor had not connected or placed either fuel tank into service. The AFCEE personnel stated the final placement of both fuel tanks will be under an existing structure (Site Photo 34), which needed to be refurbished. Once refurbished, both fuel tanks will be moved into this structure and connected in place. At the time of the assessment, both fuel tanks were empty and not in use. Therefore, we could not verify that the fuel tanks were operational. The fuel tanks appeared to meet the standards of the SOW.



**Site Photo 32. Two fuel tanks**



**Site Photo 33. Close-up of fuel tank**



**Site Photo 34. Future cover of both fuel tanks**

### **Work In Progress**

At the time of the assessment, major construction was complete, and the Iraqi Air Force occupied the aviation hangar and barracks/operations center building.

### **Work Pending**

At the time of the assessment, major construction was complete on the hangar and barracks/operations center building. However, the Iraqi Air Force and USAF identified a thorough list of construction deficiencies to the contractor and the AFCEE in a detailed memorandum dated 13 December 2005. The list contained several items identified in the assessment, such as the leaking windows and the wiring problem, but included other items as well. For example, the hangar's two outside lights are not operating, toilet and shower plumbing are not secured, and a fan control box was broken.

# **Project Quality Management**

## **Contractor's Quality Control Program**

The basic contract SOW required the contractor to prepare, for AFCEE review and approval, a site-specific Quality Program Plan (QPP) for this TO. The contractor provided the AFCEE and the U.S. Army Corps of Engineers (USACE) its Construction Quality Control (QC) Plan on 10 May 2004. This QC Plan consisted of plans, procedures, and organization necessary to produce an end product that complied with contractual requirements. The QC Plan included the qualifications of the QC personnel and procedures for tracking deficiencies from identification through corrective action.

We reviewed the contractor's QC daily reports via its website. The QC daily reports contained sufficiently detailed information including the number of Iraqi workers, the activities performed, and any testing done. However, there was no QC deficiency-tracking log.

## **Government's Quality Assurance Program**

USACE Engineering Regulation (ER) 1110-1-12 and PCO SOP CN-100 specify requirements for a Government QA program. According to AFCEE personnel, the USACE was to provide QA oversight for the aviation hangar and barracks/operations center building while the AFCEE, through Title II, was to provide QA oversight for the remainder of TOs 0003 and 0016. However, it appears that early on there was confusion between the USACE and the AFCEE as to whom was to provide oversight of the aviation hangar and barracks/operations center building. However, according to the USACE Kirkuk Area Office Area Engineer at the time of the aviation hangar and barracks/operations center building project, "USACE had responsibility for the initial scope of Phase I and mods directly associated with it. The additional work in the hangars...were AFCEE responsibility."

Current USACE Kirkuk Area Office personnel stated their QA oversight (in the form of daily QA reports) was from May 2004 to May 2005. We reviewed several QA daily reports from May 2005 and each report dealt with other aspects of TO 0003 and not the aviation hangar and barracks/operations center building. Further, Title II's daily QA reports for the AFCEE also did not deal with the aviation hangar and barracks/operations center building project.

As of 8 June 2005, when according to ECC's records the aviation hangar and barracks were 27% and 41% complete, respectively, there was no oversight of the projects. An email from an USAF major attached to the 3<sup>rd</sup> Squadron of the Iraqi Air Force on 8 June 2005 stated the following:

"...the more pressing issue comes from the CE squadron commander up here. I talked with him today and he thinks that the building could already be condemned based on what he sees so far, basically shotty (sic) construction, poor materials, etc. There is not a quality assurance individual up here that I know of to verify the construction...."

Further, another USAF representative attached to the 3<sup>rd</sup> Squadron of the Iraqi Air Force provided us with a 4-page letter previously sent to the contractor on 13 December 2005 identifying areas of poor quality work. In this letter, the USAF representative stated,

“due to questionable QA practices, I am requesting a US civil engineer on site during the repair process.”

The letter to the contractor documented over 50 deficiencies in the aviation hangar and barracks/operations center building, such as no hot water outlet for the washing machine room, no dryer exhaust ventilation ports, all water disconnected due to leaks in the ceiling of the day room, and water damage on the ceiling in Room #17. At the time of the letter, the author wrote, “the most immediate concerns I have are the hangar door integrity, the electrical wiring discrepancies, and the multiple leaks in the plumbing.”

The contractor responded to the letter by making repairs under the contract’s warranty. We observed some corrective actions during the site visit. As mentioned in the site assessment section of the report (Site Photo 29), the contractor has removed the bathroom tiles to identify the cause of the leak and will correct the damage to the ground floor ceiling that was caused by the leak.

At the end of March 2006, we followed up with USAF personnel attached to the 3<sup>rd</sup> Squadron of the Iraqi Air Force to determine if all corrective actions had been completed. The USAF personnel responded that additional lists of deficiencies were provided to the contractor that still had not been completed.

The QA program was not adequate. It appears that there was limited, if any, oversight of the aviation hangar and barracks/operations center building. According to the USAF personnel attached to the end users of this project, the 3<sup>rd</sup> Squadron of the Iraqi Air Force, the QA was at best “questionable” and at worst non-existent. As a result of inadequate QA practices, significant deficiencies, most notably the electrical fire within the aviation hangar, were not identified and corrected prior to sign off and turnover to the Iraqi Air Force.

## **Project Sustainability**

The contract adequately addressed sustainability, and it appears this will result in an operational and sustainable aviation hangar and barracks/operations center building. The contract included the turnover of the operation and maintenance manuals, as-built drawings, local procurement of parts and equipment, technical training of personnel, a one-year warranty for all equipment and operations, and providing spare repair parts for one year. The contractor worked with the Iraqi Ministry of Housing and Construction for design and support. A review of the aviation hangar and barracks/operations center building appeared to show that it was operating in accordance with the SOW’s specific objective for a functional facility.

## **Conclusions**

Based upon the results of our site visit, we reached the following conclusions for assessment objectives 1, 2, 3, 4, and 5. Appendix A provides details pertaining to Scope and Methodology.

### **1. Determine whether project results were consistent with original objectives.**

The completed project was consistent with original task order objectives. Specifically, the aviation hangar and barracks/operations center building objectives have been met. At the time of the assessment, the facilities were in use for the objectives intended.

2. Determine whether project components were adequately designed prior to construction or installation.

This project consisted of new construction. The contract and TO required submission and approval of design drawings and specifications for the new construction. Based on the review of contractor and AFCEE project files, the design was sufficient to complete these projects to Iraqi standards.

3. Determine whether construction or rehabilitation met the standards of the design.

The contract for the construction of the aviation hangar and barracks/operations center building required meeting International and U.S. standards. However, the contractor proposed and the AFCEE agreed to construction using local contractors, materials, and labor. Consequently, the construction met local Iraqi standards, not International and U.S. standards.

Deficiencies and areas of poor quality construction were documented prior to and during the site assessment. The contract did contain requirements for final inspections and warranties and this may resolve the construction deficiencies identified. The USAF personnel provided the contractor with a list of deficiencies to correct. We observed the contractor making corrective actions to some of the deficiencies noted during our site assessment.

4. Determine whether the Contractor's Quality Control plan and the Government Quality Assurance program were adequate.

The basic contract's SOW required the contractor to prepare, for AFCEE review and approval, a site-specific QPP. The contractor submitted a Construction QC Plan to the U.S. Government. The contractor did provide QC daily reports, test results, and invoices, which provided adequate detail to the U.S. Government. The U.S. Government's QA program was not adequate. It appears that there was limited, if any, oversight by either the USACE or the AFCEE for the aviation hangar and barracks/operations center building. According to the USAF personnel attached to the end users of this project, the 3<sup>rd</sup> Squadron of the Iraqi Air Force, the QA was at best "questionable" and at worst non-existent. As a result of inadequate QA practices, significant deficiencies, most notably the electrical fire within the aviation hangar, were not identified and corrected prior to sign off and turnover to the Iraqi Air Force.

5. Determine if project sustainability and operational effectiveness were addressed.

The contract adequately addressed sustainability and it appears this will result in an operational and sustainable aviation hangar and barracks/operations center building. The contract included the turnover of the operation and maintenance manuals, as-built drawings, local procurement of parts and equipment, technical training of personnel, a one-year warranty for all equipment and operations, and providing spare repair parts for one year. The contractor worked with the Iraqi Ministry of Housing and Construction for design and support. A review of the aviation hangar and barracks/operations center building appeared to show that it was operating in accordance with the SOW's specific objective for a functional facility.

## **Recommendations**

The Commander, Multi-National Security Transition Command – Iraq should:

1. Ensure that all deficiencies identified in this report and those identified by the U.S. Air Force are addressed by the contractor under the contract's warranty.
2. Ensure that adequate Quality Assurance oversight is performed on future projects.

## **Management Comments**

The Chief of Staff, Multi-National Security Transition Command – Iraq, concurred with our conclusions and recommendations and provided the following comments.

1. "The contractor has notified AFCEE that the warranty items have been completed and will be field verified by an AFCEE representative during the final inspection scheduled for 12 April 06. If at the time of inspection it's determined that all items are not satisfactorily completed then those remaining items will be re-inspected within 10 days. In addition, the Coalition Air Force Transition Team personnel will also be extended the opportunity to review the warranty items at the time of inspection."
2. "The findings outlined in the subject report are of great concern for both MNSTC-I and AFCEE. Unfortunately, during this project the quality assurance responsibility was switched from USACE to a contracted Title II company. This transition appears to have been a contributing factor to the noted deficiencies. To ensure this doesn't happen in the future AFCEE now notifies their Title II contractor simultaneously with the award of the construction contract. This change in approach has ensured continuity throughout the duration of the project.

We realize the success of our projects is contingent upon the coordination between our team composed of MNSTC-I, AFCEE, and Title II contractor. Given the number deficiencies highlighted in the report we feel it important that we discuss these issues amongst our team. For this reason we'll schedule a SIGIR Report Debriefing meeting with representation from each of the team members on 17 April to discuss the items highlighted in the report. The goal of the meeting will be to state the findings, determine the root causes, and then take the necessary actions to help minimize reoccurrence of these findings. Upon completion of the meeting we can provide minutes showing all issues discussed."

The Multi-National Security Transition Command – Iraq also provided the following comment a reference made in our assessment report.

"Laundry Facilities in Barracks. In response to the issue related to the insufficient design of laundry facilities the barracks was never intended to support such equipment. The approach that MNSCTI (sic) has used throughout Iraqi is not to incorporate laundry facilities in individual barracks buildings; consequently, the proper ventilation, water, and electrical connections were not incorporated into the building design. It appears that the end user has attempted to retrofit the facility with washers and dryers after construction."

The Commander, U.S. Army Corps of Engineers, Gulf Region Division/Project and Contracting Office, made the following unsolicited comment to the assessment report.

“USACE is included in criticism of the Government’s Quality Assurance; however, USACE had no involvement in this project. TO 3 through mod 3 was our only responsibility under the contract. The rest of TO 3 was given to AFCEE Title II. The aviation building was a part of one of the modifications after Mod 3 and therefore was not the responsibility of USACE.”

The U.S. Army Corps of Engineers further stated that the reference to them should be removed from pages ii and 20-22 of the draft report.

## **Evaluation of Management Comments**

Management comments from the Multi-National Security Transition Command – Iraq addressed the issues raised in our conclusions and actions planned and taken should correct the problems.

The U.S. Army Corps of Engineers provided management comments to clarify its position concerning the Government’s Quality Assurance Program. The U.S. Army Corps of Engineers’ position was that the aviation building was not their responsibility because they had oversight only of Task Order 0003 through Modification 03. However, Modification 03 does mention the “planning and construction” of a “hangar to perform maintenance” and “operations facilities.”

The reference to the U.S. Army Corps of Engineers in the Government’s Quality Assurance Program section of the assessment report was necessary to document the confusion over who was to perform the oversight function. The Air Force Center for Environmental Excellence, at the beginning of the assessment, stated that the U.S. Army Corps of Engineers was the responsible party for the oversight function; while the U.S. Army Corps of Engineers later stated (and again through the management comments) that they did not have oversight responsibility. The Multi-National Security Transition Command – Iraq, through its management comments, took responsibility for the oversight of this project; however, since this confusion ultimately led to the lack of any oversight, we decided to include the references to the U.S. Army Corps of Engineers in the final assessment report.

## **Appendix A. Scope and Methodology**

---

We performed this project assessment from January through March 2006, in accordance with the Quality Standards for Inspections issued by the President's Council on Integrity and Efficiency. The assessment team included an engineer and an auditor.

In performing this Project Assessment we:

- Reviewed contract documentation to include the following: Contract, Contract Modifications, Scope of Work, and Independent Government Estimate;
- Reviewed the design package (drawings and specifications), Quality Assurance Plan, Quality Control Plan, Contractor's daily Quality Control Reports, and Quality Assurance Reports;
- Interviewed the Air Force Center for Environmental Excellence (AFCEE) personnel, AFCEE local national quality assurance personnel and Environmental Chemical Corporation personnel; and
- Conducted an on-site assessment and documented results at the Kirkuk Regional Air Base, located in Kirkuk, Iraq.



## Appendix B. Acronyms

---

A/C	Air Conditioning
AFCEE	Air Force Center for Environmental Excellence
CQC	Contractor Quality Control
ECC	Environmental Chemical Corporation
EO	Executive Order
ER	Engineering Regulation
IBC	International Building Code
KRAB	Kirkuk Regional Air Base
m	Meter
NTE	Not to Exceed
PCO	Project and Contracting Office
QA	Quality Assurance
QAR	Quality Assurance Representative
QC	Quality Control
QPP	Quality Program Plan
SOP	Standard Operating Procedure
SOW	Scope of Work
TO	Task Order
USACE	United States Army Corps of Engineers
WERC	Worldwide Environmental Restoration and Construction

## **Appendix C. Report Distribution**

---

### **Department of State**

Secretary of State

Senior Advisor to the Secretary and Coordinator for Iraq

U.S. Ambassador to Iraq

Director, Iraq Reconstruction Management Office

Mission Director-Iraq, U.S. Agency for International Development

Inspector General, Department of State

### **Department of Defense**

Secretary of Defense

Deputy Secretary of Defense

Director, Defense Reconstruction Support Office

Under Secretary of Defense (Comptroller)/Chief Financial Officer

Deputy Chief Financial Officer

Deputy Comptroller (Program/Budget)

Inspector General, Department of Defense

Director, Defense Contract Audit Agency

Director, Defense Finance and Accounting Service

### **Department of the Army**

Assistant Secretary of the Army for Acquisition, Logistics, and Technology

Principal Deputy to the Assistant Secretary of the Army for Acquisition,  
Logistics, and Technology

Deputy Assistant Secretary of the Army (Policy and Procurement)

Director, Project and Contracting Office

Commanding General, Joint Contracting Command-Iraq/Afghanistan

Assistant Secretary of the Army for Financial Management and Comptroller

Chief of Engineers and Commander, U.S. Army Corps of Engineers

Commanding General, Gulf Region Division

Auditor General of the Army

### **U.S. Central Command**

Commanding General, Multi-National Force-Iraq

Commanding General, Multi-National Security Transition Command-Iraq

Commander, Joint Area Support Group-Central

### **Other Federal Government Organizations**

Director, Office of Management and Budget

Comptroller General of the United States

Inspector General, Department of the Treasury

Inspector General, Department of Commerce

Inspector General, Department of Health and Human Services

Inspector General, U.S. Agency for International Development

President, Overseas Private Investment Corporation

President, U.S. Institute for Peace

# **Congressional Committees and Subcommittees, Chairman and Ranking Minority Member**

## **U.S. Senate**

Senate Committee on Appropriations

    Subcommittee on Defense

    Subcommittee on State, Foreign Operations and Related Programs

Senate Committee on Armed Services

Senate Committee on Foreign Relations

    Subcommittee on International Operations and Terrorism

    Subcommittee on Near Eastern and South Asian Affairs

Senate Committee on Homeland Security and Governmental Affairs

    Subcommittee on Federal Financial Management, Government Information and International Security

    Subcommittee on Oversight of Government Management, the Federal Workforce, and the District of Columbia

## **U.S. House of Representatives**

House Committee on Appropriations

    Subcommittee on Defense

    Subcommittee on Foreign Operations, Export Financing and Related Programs

    Subcommittee on Science, State, Justice and Commerce and Related Agencies

House Committee on Armed Services

House Committee on Government Reform

    Subcommittee on Management, Finance and Accountability

    Subcommittee on National Security, Emerging Threats and International Relations

House Committee on International Relations

    Subcommittee on Middle East and Central Asia

## **Appendix D. Project Assessment Team Members**

The Office of the Assistant Inspector General for Inspections, Office of the Special Inspector General for Iraq Reconstruction, prepared this report. The principal staff members who contributed to the report were:

Randall Nida

Kevin O'Connor